

(19)



Europäisches Patentamt

European Patent Office

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(11)

EP 0 894 621 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

03.02.1999 Bulletin 1999/05

(51) Int. Cl.⁶:B32B 27/30, B32B 7/06,
B32B 31/18, B32B 33/00,
B32B 35/00, C08J 5/18

(21) Application number: 97305673.2

(22) Date of filing: 28.07.1997

(84) Designated Contracting States:

AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE

Designated Extension States:

AL LT LV RO SI

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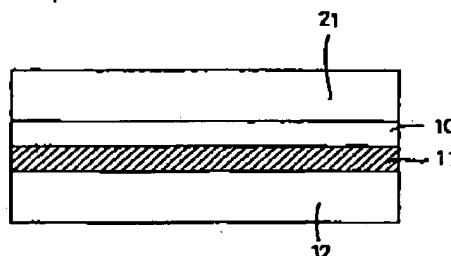
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(54) **Water-retardant film-lamina**

(57) A water-retardant film lamina is disclosed. The printable prepared layer (referring to printing papers like label stock) is laminated on top with a film of biaxial oriented polypropylene (BOPP) to retard the encroachment of water; or a printable prepared layer is applied on top of the film of biaxial oriented polypropylene (BOPP). Further, the biaxial oriented polypropylene (BOPP) can be laminated at both upper and lower sides with a layer of fastening agent which is further applied on top with a removable layer. The film of biaxial oriented polypropylene (BOPP) has pre-cut tracks or openings of different shapes such as circles or rectangles at a proper interval so that the lamina can be easily torn apart at the pre-cut tracks or openings to provide an easy-tearing as well as water-retardant film lamina.

**Fig.3**

1

EP 0 894 621 A1

2

Description

[0001] The present invention relates to a water-retardant film lamina, especially to a lamina comprising a film of biaxial oriented polypropylene (BOPP), or comprising a printable prepared layer disposed on the top surface of a layer of the biaxial oriented polypropylene (BOPP). Also the biaxial oriented polypropylene (BOPP) can be laminated at both upper and lower sides with a layer of fastening agent respectively which is further applied on top with a removable layer. The biaxial orientated polypropylene film is pre-cut with tracks or openings of different shapes such as circles or rectangles at a proper interval so as to provide the advantage of easy-tearing besides water-retardation.

[0002] A conventional lamina generally falls into two kinds; one paper-made and the other film-made. Please refer to Figure 1. Though having the advantages of easy-printing and easy-tearing, the lamina 20, made of paper, cannot retard the encroachment of water and, to achieve the advantage of water-retardation, a film of biaxial orientated polypropylene has been applied to the surface of the lamina. Yet, the lamina made of film whilst possessing improved water-retardation loses the advantage of easy-tearing.

[0003] It is therefore a primary purpose of the present invention to provide a water-retardant film lamina characterised in that the lamina comprises at least one layer of biaxial orientated polypropylene with tracks or openings pre-cut for easy-tearing thereof.

[0004] An advantage of the present invention is that an easy-tearing, water-retardant film lamina is produced.

[0005] Preferably the lamina comprises fastening means for applying additional layers on at least one of the top or bottom sides of the biaxial orientated polypropylene layer.

[0006] An advantage of the present invention is that the easy-tearing, water-retardant film layer may be used in many situations. For instance the film layer may be attached to paper products to increase the water-retardation ability of the paper products. Alternatively the film layer may be attached to the surface of solid objects to provide a protective water-retardant coating. In all these situations the fastening means, such as fastening agents, for instance glue or gum, provide a pre-prepared, easy to use fixing means. This makes the easy-tearing, water-retardant layer quick and simple to use.

[0007] Preferably the layer of biaxial oriented polypropylene (BOPP) comprises tracks or openings of different shapes such as circles or rectangles pre-cut at a proper interval in the layer of (BOPP) to ensure the advantage of easy-tearing besides that of water-retardation.

[0008] Thus, the easy-tearing of the water-retardant layer is ensured by providing tracks or openings to form a perforated demarcation of the film layer. The film layer may be easily torn into separate sections by tearing

along the line of perforation.

[0009] Preferably the biaxial oriented polypropylene (BOPP) layer is applied on the top side with a printable prepared layer and has pre-cut in the biaxial orientated polypropylene film tracks or openings of different shapes such as circles or rectangles to ensure the easy-tearing of the lamina.

[0010] An advantage of the present invention is that a printable prepared layer such as printable labels, paper, cloth, textiles or wood may be made water-retardant. Especially in that the fastening means, such as glue or gum, is protected from encroachment of water through the printable prepared layer, thus preventing the fastening means losing its fastening ability.

[0011] Preferably the biaxial oriented polypropylene (BOPP) layer is sandwiched between two layers of fastening agents which each have further applied to their exterior surfaces a removable layer; said lamina having tracks or openings pre-cut in the film of circular or rectangular shape, facilitating the easy-tearing, as well as water-retardation, of the lamina.

[0012] An advantage of the present invention is that a film layer, water-retardant in nature, is provided with fastening means on both exterior surfaces, that is the top side and bottom side of the film layer, enabling the film layer to be sandwiched between two other layers. The other layers may be printable prepared layers or another material such as cloth, paper, plastic or wood. The water-retardant film layer prevents the transmission of water from one side of the lamina to the other, yet remains easily tearable.

Figure 1 is a sectional view of a conventional lamina;

Figure 2 is a sectional view of the present invention in practical application;

Figures 2A and 2B are perspective and partially sectional views of the present invention applied with biaxial oriented polypropylene and cut with either circular or rectangular tearing-tracks or openings at a proper interval;

Figure 3 is another sectional view of the present invention in another embodiment;

Figure 4 is another embodiment of the present invention;

Figures 5 and 5A are perspective and partially sectional views of the present invention in another embodiment.

[0013] A first embodiment of the present invention is shown in Figure 2. The present invention relates to a water-retardant film lamina. The lamina 20 comprises a printable prepared layer 21 (referring to the printing papers, especially to the label stock) laminated with a removable layer 12 on the bottom side by means of a layer of fastening agent 11. The fastening agent 11 may be an adhesive, gum or other paste and may be permanent, semi-permanent or temporary in its fastening ability.

3

EP 0 894 621 A1

4

ity. On the top side of the lamina 20 is applied a film of biaxial oriented polypropylene (BOPP) 10 so as to retard the encroachment of water. Tracks 13 or openings 14 of different shapes are pre-cut at a proper interval in the biaxial oriented polypropylene (BOPP) 10 film as shown in Figures 2A and 2B so that the lamina 1 can be easily torn apart at the pre-cut tracks 13 or openings 14.

[0014] An alternative embodiment of the present invention is shown in Figure 3. The lamina 20 comprises a printable prepared layer 21, laminated on its bottom surface by a film of the biaxial oriented polypropylene (BOPP) 10. On the bottom side of the biaxial oriented polypropylene (BOPP) 10 is disposed a layer of fastening agent 11 which is further applied with a removable layer 12 on the bottom side of the fastening agent 11. Moreover, the film of the biaxial oriented polypropylene (BOPP) can be pre-cut with tracks 13 or openings 14 of different shapes at a proper interval on the surfaces so as to ensure the easy-tearing of the lamina 1.

[0015] A further embodiment of the present invention is shown in Figure 4. The film of biaxial oriented polypropylene (BOPP) 10 is laminated at both upper and lower faces respectively with a layer of fastening agent 11 which is further applied on top with a removable layer 12. Moreover, the film of the biaxial oriented polypropylene (BOPP) 10 is pre-cut with tracks 13 or openings 14 of different shapes at a proper interval as shown in Figures 5 and 5A, permitting the easy-tearing of the water-retardant film which can then be fastened on both sides by means of either or both layers of fastening agent 11. Whilst the printable prepared layer 21 has been described for example purposes as printing papers, especially label stock, it should be understood that the printable prepared layer 21 may be utilized in other ways, may or may not be printed on and may be manufactured from paper, card or any other suitable medium requiring improved water-retardation.

Claims

1. A water-retardant film lamina characterized in that:

the lamina comprises at least one layer of biaxial orientated polypropylene with tracks or openings pre-cut for easy-tearing thereof.

2. A water-retardant film lamina as claimed in claim 1 characterized in that:

the lamina comprises fastening means for applying additional layers on at least one of the top or bottom sides of the biaxial orientated polypropylene layer.

3. A water-retardant film lamina as claimed in claim 1 characterized in that:

the layer of biaxial oriented polypropylene (BOPP) comprises tracks or openings of different shapes such as circles or rectangles pre-cut at a proper interval in the layer of (BOPP) to ensure the advantage of easy-tearing besides that of water-retardation

4. A water-retardant film lamina as claimed in claim 1 characterized in that:

the biaxial oriented polypropylene (BOPP) layer is applied on the top side with a printable prepared layer and has pre-cut in the biaxial orientated polypropylene film tracks or openings of different shapes such as circles or rectangles to ensure the easy-tearing of the lamina.

5. A water-retardant and easy-tearing film lamina as claimed in claim 1 characterized in that:

the biaxial oriented polypropylene (BOPP) layer is sandwiched between two layers of fastening agents which each have further applied to their exterior surfaces a removable layer; said lamina having tracks or openings pre-cut in the film of circular or rectangular shape, facilitating the easy-tearing, as well as water-retardation, of the lamina.

EP 0 894 621 A1

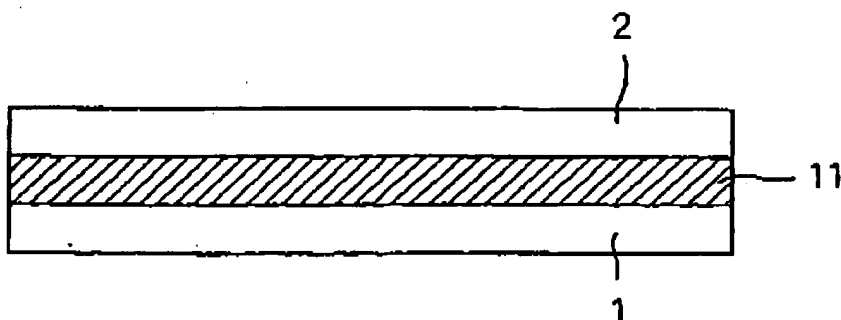


Fig. 1 Prior Art

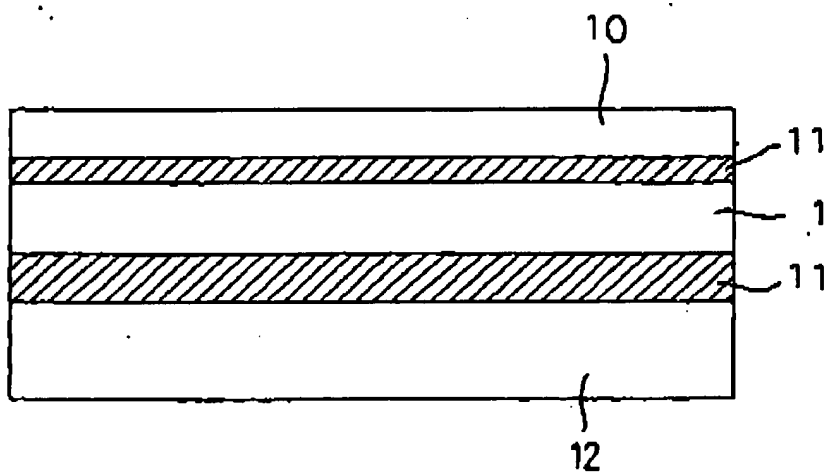
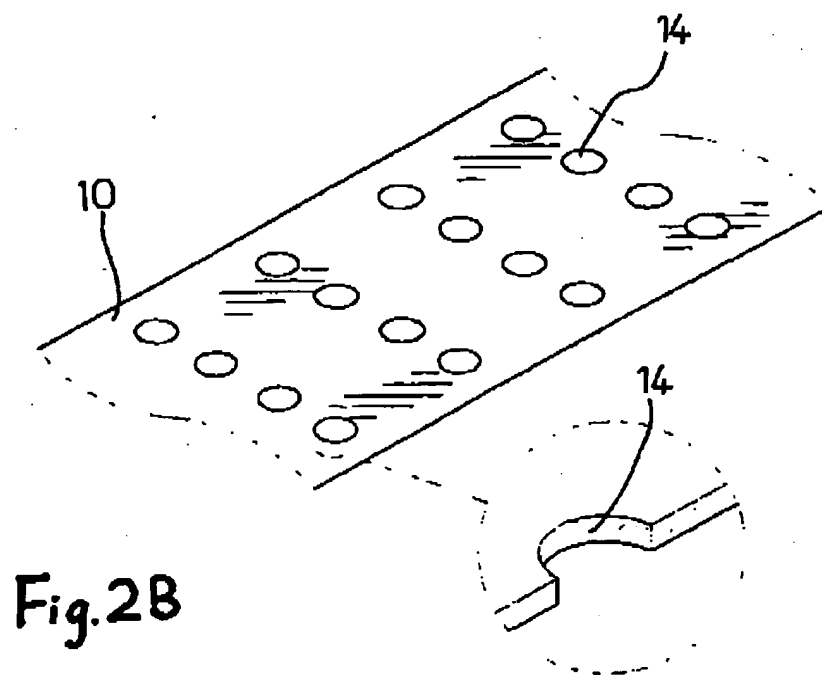
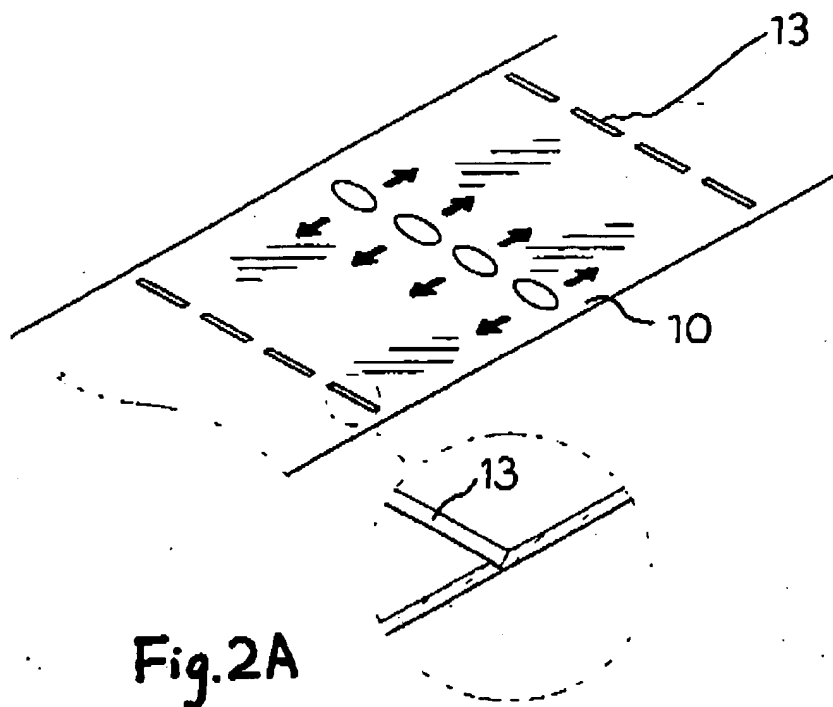


Fig. 2

EP 0 894 621 A1



EP 0 894 621 A1

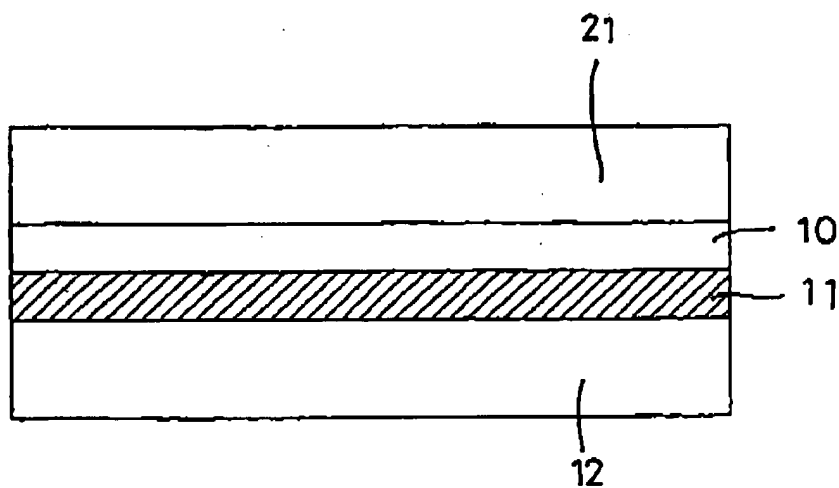


Fig.3

EP 0 894 621 A1

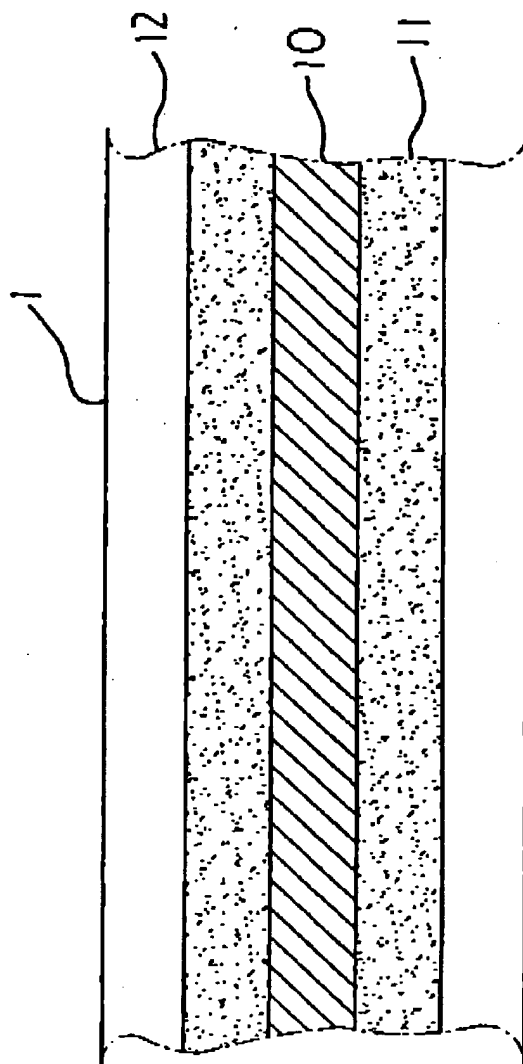


Fig. 4

EP 0 894 621 A1

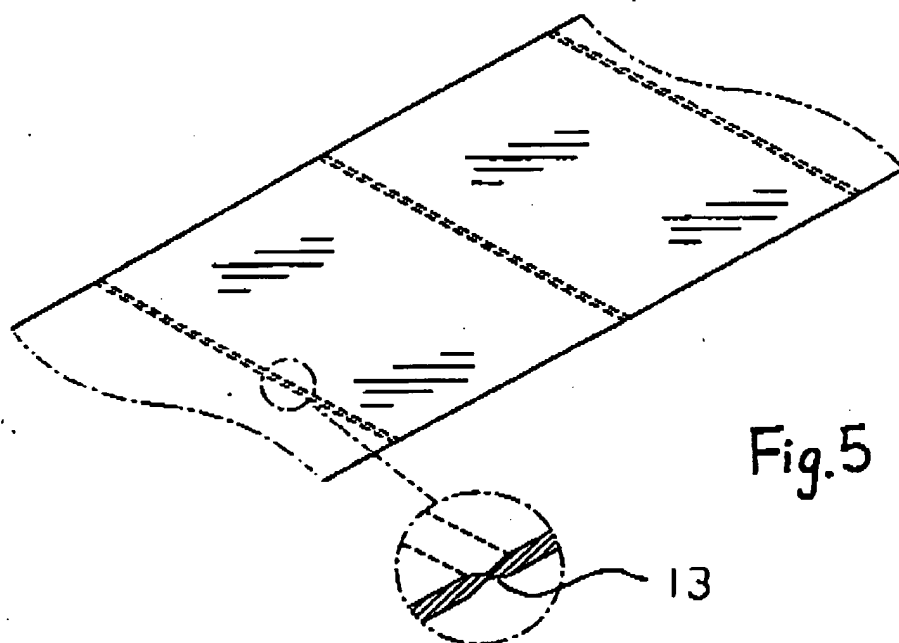


Fig. 5

Fig. 5A

EP 0 894 621 A1

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EUROPEAN SEARCH REPORT

Application Number

EP 97 30 5673

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Incls)
X	EP 0 785 244 A (KAO CHENG KANG) * column 2, line 52-58 - column 4, line 1-3; claims 1-3,5-7; figures 1,1A,2,2A,4A * * column 4, line 39-41 *	1-5	B32B27/30 B32B7/06 B32B31/18 B32B33/00 B32B35/00 C08J5/18
X Y	GB 1 558 503 A (DAICEL LTD) * page 1, line 49-55 - page 2, line 41-59; claims 1-4,8; figures 1-6 * * page 2, line 86-92 - page 3, line 1-5-56 * * page 3, line 76-80 *	1-5 1-4	
X Y	DE 40 36 985 A (MINNESOTA MINING & MFG) * column 2, line 59 - column 3, line 54; claims 5-8,10,11; figure 2 * * column 6, line 23-27; example 1 *	1,2 3,4	
X	US 4 889 754 A (VARGAS KY) * column 2, line 60 - column 4, line 31-58; claims 1,3,5-10; figure 2 *	1,2	
Y	DATABASE WPI Section Ch, Week 7711 Derwent Publications Ltd., London, GB; Class A94, AN 77-18926Y XP002055199 & JP 52 013 581 A (DAISEL LTD), 1 February 1977 * abstract *	1,2	TECHNICAL FIELDS SEARCHED (Incls) B32B C08J
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10 February 1998	Examiner Derz, T
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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